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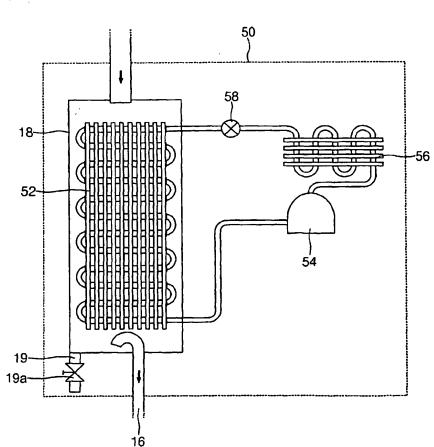
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[Continued on next page]

#### (54) Title: PLASMA STERILIZER HAVING DEHUMIDIFIER



(57) Abstract: Disclosed is a dehumidifier-equipped plasma sterilization apparatus having a (10) chamber for sterilization receiving therein a sterilization object (11); a high frequency power source (40), connected to a cathode, for generating plasma in optimal condition under control of both an impedance matching controller (42) and an impedance matching circuit (44), the cathode being installed, along with an anode at a predetermined distance, in the sterilization chamber; a vacuum pump (14), connected through an exhaust pipe (16) to the sterilization chamber, for exhausting air from the sterilization chamber (10) to form a vacuum state in the sterilization chamber (10); and a dehumidifier (50), mounted on the exhaust pipe (16) for freeze-condensing the water vapor of the gas flowing through the exhaust pipe. In the apparatus, water vapor remaining in the mixed gas used for sterilizing the sterilization object is frozen and removed so that it does not enter the vacuum pump.



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# INTERNATIONAL SEARCH REPORT

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| Minimum documentation searched (classification system followed by classification symbols)  IPC7 A61L, F26B, H01J  |   |  |  |                       |  |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Patent and applications for inventions since 1975, Korean Utility models and applications for Utility Models since 1975 Japanese Utility models and applications for Utility Models since 1975 |   |  |  |                       |  |
| Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used) KIPASS  |   |  |  |                       |  |
| C. DOCUM  | MENTS CONSIDERED TO BE RELEVANT   |  |  |                       |  |
| Category*   | Citation of document, with indication, where appr   | ropriate, of the relevant passag   | es   | Relevant to claim No. |  |
| A   | EP 0278623 A (SURGIKOS, INC.) 17 August 1988<br>See the whole document  |  |  | 1-2                   |  |
| A   | WO 96/21473 A (GRAVES, CLINTON, G.) 18 July 1996<br>See the whole document  |  |  | 1-2                   |  |
| A   | EP 0707186 A (JOHNSON & JOHNSON MEDICAL INC.) 17 April 1996 See the whole document  |  |  | 1-2                   |  |
| A   | EP 0834324 A (JOHNSON & JOHNSON MEDICAL INC.) 08 April 1998 See the whole document  |  |  | 1-2                   |  |
| A   | US 5,325,020 A (ABTOX INC.) 28 January 1994<br>See the whole document   |  |  | 1-2                   |  |
|   |   |  |  |                       |  |
|   |   |  |  |                       |  |
| Further   | r documents are listed in the continuation of Box C.  | X See patent famil   | y annex.                                   |                       |  |
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| Patent document cited in search report | Publication<br>date | Patent family member(s)  | Publication date   |
|--|---------------------|--|--|
| EP 0278623 A                           | 17.08.1988          | AU 1078988 A BR 8800301A CA 1299835 C DE 3889235 D1 DE 3889235 T2 ES 2063029 T3 IE 62878 B1 KR 9710057 B1 NZ 223182 A                              | 28.07.1988<br>06.09.1988<br>05.05.1992<br>01.06.1994<br>06.10.1994<br>01.01.1995<br>08.03.1995<br>20.06.1997<br>26.04.1990                             |
| WO 96/21473 A                          | 18.07.1996          | ZA 8800531 A  US 5633424 A  AU 4962596 A  CA 2208638 A1  EP 0800406 A2  JP 11501530 T  US 5633424 A  | 27.09.1989<br>27.05.1997<br>31.07.1996<br>18.07.1996<br>15.10.1997<br>09.02.1999<br>27.05.1997   |
| EP 0707186 A                           | 17.04.1996          | AT 178399 T AU 3314395 A BR 9504382 A CA 2160208 A1 CN 1131564 A DE 69508692 T2 ES 2129763 T3 JP 8206181 A RU 2157703 C2 US 5656238 A ZA 9508542 A | 15.04.1999<br>26.04.1996<br>08.10.1996<br>12.04.1996<br>25.09.1996<br>30.09.1999<br>16.06.1999<br>13.08.1996<br>20.10.2000<br>12.08.1997<br>10.04.1997 |
| EP 0834324 A                           | 08.04.1998          | CA 2217648 A1<br>JP 10216205 A<br>TW 482687 B  | 04.04.1998<br>18.08.1998<br>01.04.2002   |
| US 5.325,020 A                         | 28.01.1994          | NONE   |  |